

CHEMICALLY RESISTANT
EMISSION MEASUREMENT PUMP
ACCORDING TO ATEX/IECEX

DATA SHEET E 170



Emission measurement pump N 87 TTE Ex -
for use in potentially explosive atmospheres

Concept

The emission measurement pumps from KNF are based on a simple principle - an elastic diaphragm, fixed on its edge, moves up and down its central point by means of an eccentric. Thus, the medium is transferred via automatic valves.

The new range of KNF pumps for the first time is equipped with the patented stress-optimized structured diaphragm, resulting in a durable product of high pneumatic performance. Special valves ensure minimum resistance to flow.

Pumps and pump drives in this product series are explosion proof according to 2014/34/EU (ATEX) and IECEx. The high gas-tightness of the diaphragm system is especially important for use in potentially explosive atmospheres.

Features

- Uncontaminated flow**
No contamination of the media due to oil-free operation
- Chemically resistant**
against aggressive and corrosive gases and vapors
- Maintenance-free**
- Explosion proof versions to ATEX/IECEX**
- High level of gas tightness**
thanks to the closed diaphragm surface and special sealing system
- Minimized pneumatic loss**
by means of a new valve system
- Long product life**
due to the structured diaphragm
- Ready for assembly**
- Can be operated in any installed position**

Areas of use

The diaphragm vacuum pumps offer a high level of performance, as well as an excellent price performance ratio. They are required especially in the potentially explosive fields of chemical, analysis, energy and production technology.

The pumps are used for transferring, compressing and sucking air, gases and vapors, taking samples (even liquids in a vacuum) and evacuating and compressing vessels etc.

Beside other applications, pumps are used for gas measurement, for example for sampling gases out of the ambient environment, or for exhaust gas and smoke analysis. Easy installation and adaption to a variety of processes.

Performance data					
Type	Delivery (l/min)	Vacuum (mbar absolute)	atm. press.	Pressure (bar g)	Weight (kg)
N 87 TTE Ex	7.5	140		1.5	7.0

N 87 TTE EX

Performance data

Type	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 87 TTE Ex	7.5	1.5	140

¹⁾ Liter at STP

Motor data

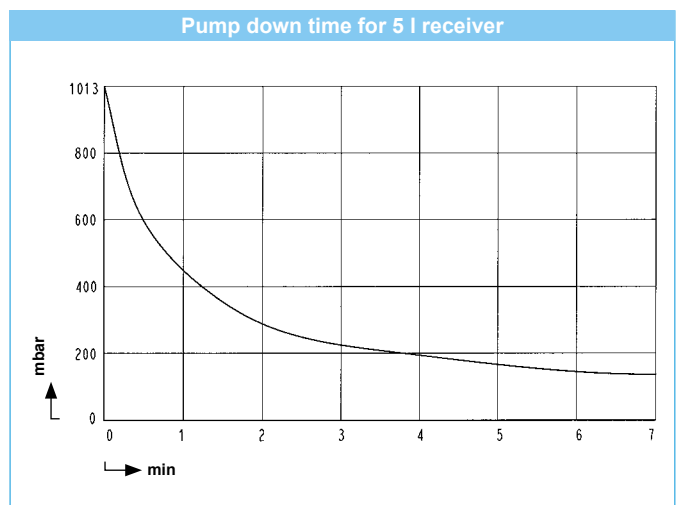
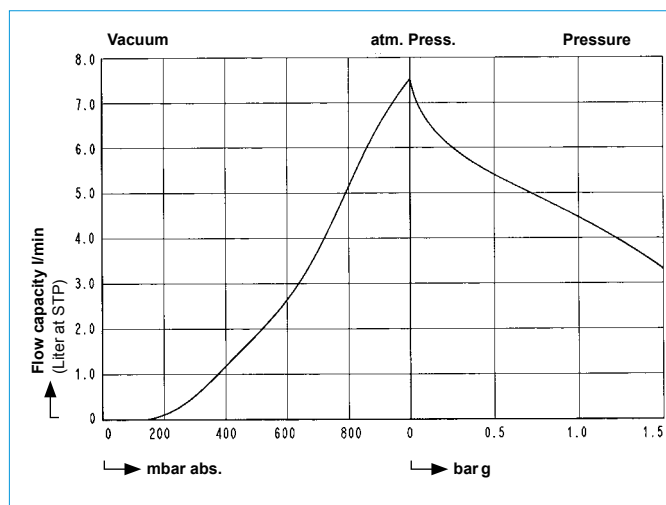
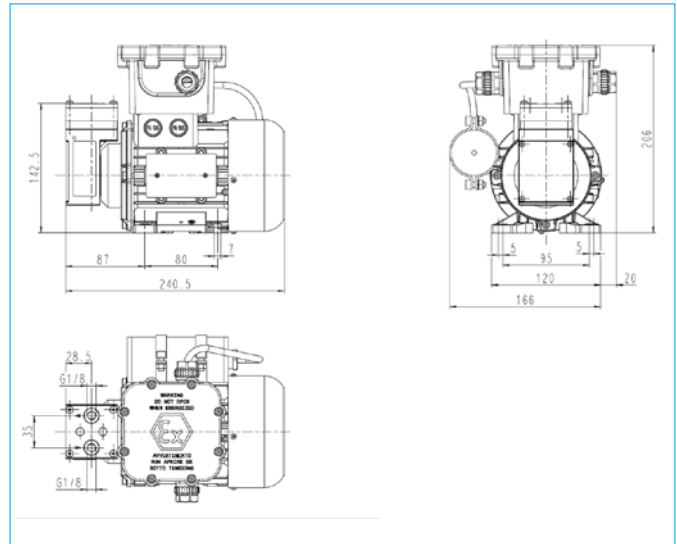
Protection class	IP 66	IP 66
Voltage (V)	230	115
Frequencies (Hz)	50/60	50/60
Power P ₁ (W), 50/60 Hz	166/158	162/155
I _{max} (A), 50/60 Hz	0.96/0.72	1.92/1.40

Pump material

Type	Pump head	Diaphragm	Valves
N 87 TTE Ex	PVDF	PTFE-coated	FFPM

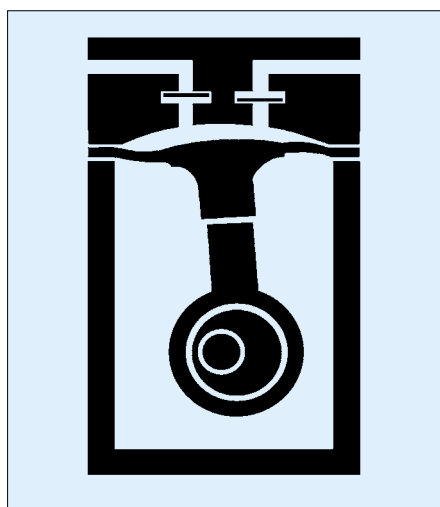
Explosion protected

Type	Pump parts	AC motor
N 87 TTE Ex	Ex II 2G c IIB + H2 T4 X	Ex II 2G Ex db IIC T4



Function of KNF diaphragm gas sampling pumps

An elastic diaphragm is moved up and down by an eccentric (see illustration). On the down-stroke it draws the air or gas being handled through the inlet valve. On the up-stroke the diaphragm forces the medium through the exhaust valve and out of the head. The compression chamber is hermetically separated from the drive mechanism by the diaphragm. The pumps transfer, evacuate and compress completely oil-free.



Hints on installation and operation

- Range of use: Transferring air and gases at temperatures between +5 °C and +40 °C. Use in potentially explosive atmospheres for equipment group II, categories 2 G and for authorized gases of group IIB + H2 up to temperature class T4.
- Permissible ambient temperature: +5 °C ... +40 °C.
- The pumps are not designed to start against pressure or vacuum; when a pump is switched on the pressure in the suction and pressure lines must be atmospheric. Pumps that start against pressure or vacuum are available on request.
- To prevent the maximum operating pressure being exceeded, restriction or regulation of the air flow should only be carried out in the suction line.
- Components connected to the pump must be designed to withstand the pneumatic performance of the pump.
- Install the pump so that the fan can draw in sufficient cooling air.
- Fit the pump at the highest point in the system, so that condensate of the tubing cannot flow to in the pump head.

Technical details

Gas-tightness of pump head: leakage rate approx. 6×10^{-3} mbar l/s, not tested in serial production.

What KNF offers

KNF offers transfer pumps, vacuum pumps and compressors for

- Equipment group II and
- category 2 G (for gases, vapors and mists where explosive atmospheres are likely to occur)
- approved gases of group IIB + H2 and temperature class T4

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